Newsletter of the North American Mycological Association

THE MYCOPHILE

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2013 Annual Foray in the Ozark National Forest

Greetings from the Arkansas Mycological Society. Our hope is that many of you have or will soon begin preparations that will ensure your attendance at this year's NAMA foray. The dates are Thursday, October 24 - Sunday, October 27. The foray site is the Sheperd of the Ozarks conference center, (http:// www.sotocamp.com/) located in the Ozark National Forest area of Arkansas, aka the Natural State. Last year in late October, the national forest was ablaze with color from the leaves undergoing their annual color change.

Foray participants can easily fly into the Bill and Hillary Clinton National Airport in Little Rock and then secure ground transportation for the remaining 115 miles. Plans are to have two vans to transport participants who arrive on either Tuesday or Thursday to the foray site and get them back to the airport on Sunday for a nominal fee of $15 one way; $25 round trip.

There is so much that a person can do while staying in the Natural State that many of you may certainly want to come early or extend your time in Arkansas after the foray. Arkansas boasts ample lakes for fishing or cruising, a diamond mine located near the town of Murfreesboro, where collectors are allowed to keep any and all rocks they find, and a historic town (Hot Springs) that contains geothermal hot springs that have, for decades, attracted folks that have enjoyed soaking in these thermal baths. This same town has several quartz crystal mines where individuals can harvest their own quartz crystals. These are only four examples of the diversity of activities that a visitor can find to occupy their time while visiting Arkansas. There are certainly many others available.

Dr. Clark Ovrebo, professor of biology at the University of Central Okalahoma, will be the chief mycologist. Other confirmed mycologists include: Andy Methven, Alan and Arleen Bessette, Michael Kuo, David Lewis, Britt Bunyard, Walt Sturgeon and Jean Lodge.

Registration for this foray will be available in the next issue of The Mycophile.

FORAYS and EVENTS for 2013

This section of the newsletter is reserved for publicizing the annual forays and events of NAMA affiliated clubs. If you would like us to list your club's next big event, contact us with details you would like displayed here and send to dianna.smith@comcast.net

June 22-29: Natural History Conference on Star Island off the coast of New Hampshire. The theme is "The Mysterious & Misunderstood World of Mushrooms". Dr. Rick Van de Poll will be giving lectures throughout the week, giving the do's and don't's of picking and using mushrooms, including their many culinary uses. Here is an opportunity to learn all about mushrooms and enjoy a week on an island off the coast of New Hampshire. http://www.nhcstar.org

August 7-11: NEMF Foray in Rimouski, Quebec.

Aug. 30-Sept. 2: COMA's Clark Rogerson Foray at the Hemlocks Easter Seals Camp in Hebron, CT over Labor Day weekend. Everyone is welcome whether a member or not. Invited mycologists include Gary Lincoff, Roz Lowen, Bill Yule and others. To register, see www.comafungi.org.

Eagle Hill Institute Mycology Workshops in Steuben, Maine
PO Box 9, 59 Eagle Hill Road, Steuben, ME 04680 - office@eaglehill.us, www.eaglehill.us
July 28-Aug. 3: Mushroom Identification for New Mycophiles: Foraging for Edible and Medicinal Mushrooms with Greg A. Marley and Michaeline Mulvey
Sept. 8-14: Boletes of North America: A Field Seminar and Workshop with Alan E. Bessette and Arleen R. Bessette

Sept. 12-15: Wildacres Regional Foray in the Blue Ridge Mountains of North Carolina.

Oct. 24-27: Arkansas Mycological Society hosts the 2013 NAMA Foray.
Approximate cost to Participants:
(58) Premium Beds (Private Rooms) with (8) Meals $315-$325/person
(50+) Non-Premium Beds (Bunk Areas) with (8) Meals $275-$290/person
Meals Only (Residing Off-site) $150-$165/person
Proposed collecting areas include well-known areas in the Ozark National Forest and hopefully at least one all-day collecting trip visiting the Buffalo National River area.
(Membership in NAMA is required to attend NAMA Forays).

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Yellow morel growing under dying elms.

Wildacres Regional Foray-September 12-15, 2013

Nestled in the Blue Ridge Mountains near Little Switzerland North Carolina is the peaceful, beautiful setting of the Wildacres Retreat Center. Wildacres, hosted by Mike and Katherine House, and located between mileposts 336 and 337 on the Blue Ridge Parkway, is only a short drive to Crabtree Falls, Linville Falls, and Mount Mitchell and the site of the NAMA regional foray since 1997. Orson Miller was the first chief mycologist at Wildacres, and we were lucky to have him twice return to impart his witty nature and vast and knowledge of the mushrooms of the Southern Appalachians. In addition to Orson, Greg Mueller, Dennis Desjardin, Juan Mata, Andy Methven, Brandon Matheny, Coleman McCleneghan, and Walt Sundberg, have been some of the talented mycologists known to join us at the foray. Innumerable amateur mycologists, professors and grad students have also attended. The opportunities for learning are countless.

Every year since 1997, new species are found, old species return, and Rod Tulloss has identified an Amanita species first found at the Wildacres foray. Last year, 207 individual species were identified by our chief mycologist, supporting mycologists, and foray attendees. Friday and Saturday programs are planned (TBA). In addition to new research, programs often feature the photography of foray attendees, including the fabulous Noah Siegel.

We have made a name for ourselves at Wildacres, and our programs and mushroom collections are often visited by other groups staying at Wildacres. Jewelers, song writers, star gazers, petrologists, new-agers, and nurses have been marveled by the number, the variance, and “the smell” of the collections, and they in turn have shared their knowledge and gifts with us.

Some years are wet and cloudy; some are sunny and dry.The weather can be warm or cold; nevertheless, the company is always good, the food is tasty, the vistas from the patio are beautiful and the experience is like none other. For information on the Wildacres Retreat see their website at http://www.namyco.org/events/wildacres_foray.html or http://wildacres.org/.

Wildacres Regional Foray
September 12-15, 2013
Wildacres, North Carolina

To register, complete this form and mail with a check, payable to NAMA, for $230 per person to:

Glenda O'Neal
1038 Wateree Street
Kingsport, Tennessee 37660

Info: glendakoneal@yahoo.com
Phone: (423) 246-1882

Persons sharing a room may use the same form.

Name_____
Male_____ Female _____
Address_____
_____
Phone _____
Email_____

Dietary Requests _____
Bedding Preference: Double___ Single____

Name_____
Male_____ Female_____
Address_____
_____
Phone _____
Email_____

Dietary Requests_____
Bedding Preference: Double___ Single ___

I wish to room with _____.

Participants in this foray will be limited to 40 persons, double occupancy. There are no private rooms.

The cost of the foray covers 3 nights lodging and 8 meals beginning with an evening meal on Thursday September 12 and ending with breakfast on Sunday September 15.

Liability waiver:

By signing below I release the North American Mycological Association, its officers, and members from any and all liability and loss arising from any accident, injury, or illness which may result from activities of the NAMA regional foray at Wildacres.

Signature #1: _____ Date:_____

Signature #2: _____ Date:_____

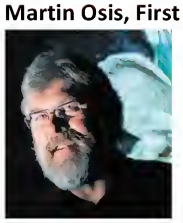
MEET THE NAMA EXECUTIVE COMMITTEE

The Executive Committee manages the affairs of NAMA between Board of Trustees meetings. You can see slightly longer bios at: http://www.namyco.org/about/executive_committee.html

David Rust, President

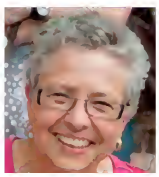
David is NAMA President. He is co-founder of the Bay Area Mycological Society. He created the All California Club Forays in 2005 and coordinated the Mycoblitz science forays at Point Reyes National Seashore. He is an active participant in the Yosemite Fungal Survey and the North American Mycoflora Project. He is a past president of the Mycological Society of San Francisco. In the last decade, David has followed news and research about the devastating forest pathogen *Phytophthora ramorum*, cause of the disease known as Sudden Oak Death. David is a gym rat and plays volleyball twice a week.

Martin Osis, First Vice President



Martin is one of the founding members of the Alberta Mycological Society (AMS), where he has held various positions, including President, Program Director, and Foray Coordinator. He is also a member of the Pacific Northwest Key Council. Martin is the Canadian regional trustee and was recently elected Vice President of NAMA. Martin is one of Alberta's experts in mushroom field identification. His interests lie in fungi keys, medicinal mushrooms, and mushroom photography. He is studying Traditional Chinese Medicine at Grant MacEwan University.

Adele Mehta, Second Vice President

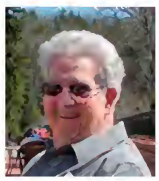


Adele is a long time member of the Minnesota Mycological Society and currently serves on its board. She has volunteered with several projects on fungi and ecology. Since 1998, Adele has served as Recorder for the annual foray, entering information into the database for NAMA's Voucher Collection Project. She is also a member of the Voucher Committee. She has been second vice president of NAMA since 2008, and co-chairs an ad hoc committee to update the policy manual.

Bob Fulgency, Past President

Bob was NAMA president from 2010-2012. Since the mid-1990s Bob served as Secretary, Vice President, President and Past President of the Minnesota Mycological Society. For NAMA, he served as Secretary, First Vice President, President and now once again in his favorite job of them all: Past President. He has been on the Executive Committee for the past 12 years and also acted as co-chair of the 2001 NAMA Foray held in Minnesota. He thoroughly enjoyed and found most rewarding working in each of these positions.

Herb Pohl, Treasurer



Born in Germany, Herb Pohl was introduced to mushroom hunting at an early age, hiking through the woods with his father to gather edible mushrooms. He started his mushroom activities as a member of the New Jersey Mycological Association in 1983. He served as the NJMA president in 1988 and 1999 and has been the club's book seller for the last 14 years. Herb joined NAMA in 1985 and became a life member a few years later. In 2009 he was appointed NAMA Finance Chair and was elected NAMA Treasurer in 2012.

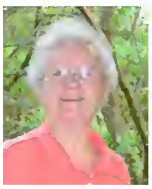
Linnea Gillman, Secretary

Linnea has been active (past president, taught classes, webmaster) in the Colorado Mycological Society for 40 years. She volunteers in the Sam Mitchel Herbarium of Fungi at the Denver Botanic Gardens.

Ann Bornstein, Membership

Ann has been doing membership for 33 years. Everybody knows Ann.

Anna Gerenday, Member At Large



Anna is a non-native Minnesotan. She moved to Minnesota from New Jersey in the 1970s where she "broke her teeth" on fungi with the New Jersey Mycological Association. She has attended NEMF forays, been a long time member of the Minnesota Mycological Society, and is a life member of NAMA. Anna has been attending Gulf States Mycological Society winter forays to expand her fungal interest. She served as Region 6 Trustee, in between helping organize the 1995 and 2001 NAMA forays in Minnesota. Anna is looking forward to hands-on citizen science at the 2013 BioBlitz in Louisiana in May.

Bill Yule, Member at Large

Bill is a field biologist and teacher at the Connecticut River Museum, in Essex, Connecticut. He discovered mycology when he was an undergraduate studying botany. Bill has been a member, officer and Education Chair of Connecticut Valley Mycological Society since 1988. He has been a principal identifier, lecturer and presenter in major forays in the east for 20 years and he participates in numerous events for the NEMF, COMA and CVMS. Bill has given presenations about fungi to dozens of environmental organizations and clubs all the Northeast. His specialities are the Boletaceae and insect/fungus relationships.

Marian Maxwell, Member at Large

Marian is the current President of the Puget Sound Mycological Society in Seattle. She is also on the Board of Trustees for the Daniel E Stuntz Memorial Foundation, a non-profit foundation established to support and promote the study of mycology. She was introduced to the club by Dr. Daniel Stuntz who had asked her to help at an annual show. She had the pleasure of taking all of Dr. Stuntz's undergraduate courses before graduating in 1979 with a Bachelor of Science in Botany. Marian is glad the PSMS is hosting the 2014 NAMA Foray in Port Townsend.

Rebecca Rader, Executive Secretary

Since discovering the wonderful world of mushrooms 15 years ago, Rebecca became immersed in their beauty, value, and the adventure of discovery. She joined NAMA in 2004, formed a Virginia club in 2008, and took office as Executive Secretary in 2011. She works to facilitate learning, communication, and connections among mycophiles. In her position with NAMA she answers inquiries and help people find the information they need. She believes our organization to be as integral as the objects of our affection in building a better future both culturally and ecologically.

!!!NOTICE from the MEMBERSHIP CHAIR!!!

If you have not yet paid your 2013 dues, this will be your last issue of The Mycophile. If this came in the mail ***look at your label for your status***. Are there stars on your label? That means your dues have not been received. Please go to the website (see the JOIN tab on the NAMA website namyco.org) and pay via Paypal at http://www.namyco.org/join/application.html or send your check to :

Ann Bornstein
61 Devon Ct
Watsonville CA 95076

Here is the new dues structure: electronic delivery - hard copy

Individual or family:	$29	$35
Member of affiliated club:	$24	$30
Student:	$15	$20
Foreign:	$29	$45
Sustaining:	$60 or more	

2012 Winners of the Documentary Division Photo Contest

Hygrocybe lacmus **- First Place**
Photo by Renée LeBeuf

Amanita flavorubens **- Second Place**
Photo by Renée LeBeuf

Panellus serotinus **- Third Place**
Photo by Charles Fonaas

Dyeing with North America's Best Mushrooms In Scotts Valley, CA

A Workshop for Dyers From an Appreciator *(Maggie Rogers)*

In the U.S., the art of mushroom dyeing is usually made up of women who've discovered the glorious colors to be found in fungi. It's a growing activity, calling for harvesting and drying the fungi, storing them with names and descriptive information (where found, near what other growth and in which habitat and season. It's not a common activity, though among mushroomers' associations, such as the Oregon Mycological Society, one that's growing in popularity. For this event there were 24 participants in all, coming from places all over the world, with the farthest travelling all the way from Norway!

Mushrooms as *Boletopsis grisea, Gomphus clavatus, Hapalopilus nidulans, Cortinarius semisanguineus, Hydnellum scrobicululatum, Omphalotus olivascens, Tapinella atrotomentosa, Inonotus hispidus, Phellodon alboniger, Hydnellum caeruleum, Hydnellum suaveolens, Hydnellum cyanopodium,* and *Hypomyces lactifluorum* were the chosen ones for the workshop. Others were omitted due to limited space or lack of material; some still have not been tried…others were found wanting for dye content. And if you don't have these fine fungi in your area? Well, think of "trading cards"…perhaps your area has some dye fungi that other geographic areas or seasons of fruiting don't offer locals, and you could offer trades!

At each table, participants received a packet: "North American Mycological Association Presents **Mushroom Dyes of North America**," with Dorothy Beebee, Susan Hopkins, and Alissa Allen, followed by **"A Brief History of Mushrooms for Color,"** by Dorothy M. Beebee, plus a pair of additional sheets **"Dyeing Wool," "Scouring Wool," "About Mordants," "Mordant Procedures," and "Preparing the Dye Bath"** by Alissa Allen describing the basic dye procedure.

With this, a series of **Record Sheets**, with room for adding notes, each with a detailed drawing of the species, and charts for adding *"Time in dye bath"…Solvent…pH Modifier…pH…*and *Mordant,"* below which appeared cues for "*No mordant , Alum,* and *Iron"* (these were the only mordants used during the workshop sessions.) At the edges of these, holes had been laboriously punched to receive each eventual dyed yarn strand beside its appropriate mordant. These all have become a treasured notebook of an unforgettable experience.

Now: imagine a roomful made up of over a dozen dyer/demonstrator folks ready with wools and dyes - dyes from mushrooms gathered from various areas of the country, most of them dried much ahead of this event! *(Even I had remembered to bring some to contribute!)*

Picture in your mind the fungus colors contained in half gallon Mason jars, simmering in several big dye pots… the experienced dyers ready with helpful handouts. On the wall near each dye pot, white boards were mounted, and the "cooking process" details were regularly added there so observers could enter the data on their notebook chart pages (the time in dye bath/solvent/ etc.). We, the watchers, were enlisted as scribes… begging details if needed. In the room, dyer *mavens* Susan Hopkins, Alissa Allen, Dorothy Beebee and others stirring the several steaming dye pots, preparing more dye mushrooms, and offering replies to questions, or instructions for beginners. We were expected to "fill in the blanks" of our handouts as the information appeared on white boards near the constantly stirred steaming pots.

Dorothy Beebee, who'd shared authorship with Miriam Rice of the "mushroom dyers' bible"* sat smiling next to me at one of the observers' tables, happy to be watching once more this room-steaming, heart-warming, eye-stunning activity. East Coast dyer Susan Hopkins, avid mycologist, toothed fungi specialist and knitter of beautifully dyed woolen sweaters, caps and other wooly bits, was our authority on the

magic of the habitat background and chemistry of each of the dye mushrooms. And each of these leaders not only shared valuable information as the workshop proceeded, but stood by the pots, encouraged the stirrers, and gave attention to those of us who were watchers. Whether worker bee or observer, most of us moved about much of the time to see results!

The room steamed, perfumed deliciously by the cooking dye fungi. Hanks of wool went into the pots to be gently moved back and forth, back and forth. Heads bent to peer past the steam to watch the wools take the color. A sort of "mavens' workroom" with magic happening slowly, slowly (some of the pots needed more time, others less, to color the wools). In fact, some of the pots were kept going all day long, whether with added wools or just the original wools. From this, no doubt, the charm of light to richer darker hues moving into the hanks of yarn.

For each of us, a generous Noah (one of the Foray Planners and Executors!) included a little silk scarf ready for dye, and those became our talismans. Mine joins the notes and the dyed yard strands that now fill a notebook, their strands of color knotted into the appropriate holes punched beside their mordant on the record sheets. Nine sheets with several variations of each dye, strands of blue-green, bright yellow, rich pinkish-apricot, warm brown, near-black and earthy red and magenta.

Outside, laundry racks began filling with colorful wool yarn hanks, as other wandering foray participants stopped to watch and admire. Few had probably ever thought that this could become a part of the mushrooming life...and some might go home hankering to dye a few wooly hanks of their own.

For those of us who were not stirring or recording, it was a fascinating experience. It went on, through the rest of the day and though the workshop ended before dinner, enthusiastic dyers returned to the pots and continued through the night, and even returned in the morning the next day. The dye pots never really cooled, but kept steaming on, along with their stirrers and watchers...a unique and exciting part of a NAMA Foray! *

**Mushrooms for Dyes, Paper, Pigments & Myco-stix*" by Miriam Rice, with illustrations by Dorothy M. Beebee, (now in print again, if only briefly!)

Will this become an annual event for NAMA Forays? We can only hope so!*

Maggie Rogers
Oregon Mycological Society, Portland,
Oregon

Dye Class Instructors: *Photo by Cheryl Dawson*

Dyers in Action: *Photo by Becky Plischke*

Dr. Cathy Cripps Recipient of 2012 NAMA Award for Contributions to Amateur Mycology

Dr. Cathy Cripps has been honored as the recipient of the 2012 NAMA Award for Contributions to Amateur Mycology. She has benefited NAMA, local and regional mycology clubs, and the general public through her service, research and teaching, exemplifying the spirit of previous professional mycologist recipients of this award such as Drs. Alexander H. Smith, Harry D. Thiers, and her own mentor Orson K. Miller Jr. She has been a dedicated supporter of NAMA and local and regional mycology clubs as a foray mycologist, lecturer, and advisor, including service to NAMA as the chief mycologist for several of its annual forays. She is the scientific consultant for the Southwest Montana Mycological Association, and is a member of the editorial review board of FUNGI magazine. She contributes her considerable skills not only to organized mycology clubs, but to the general public as well. One of only a handful of professional mushroom taxonomic specialists in the intermountain west, Cathy serves the people of Montana through identifying mushrooms for the Montana State University Extension program and the numerous local people who bring mushrooms to her laboratory for identification assistance, and by serving as a consultant on regional mushroom poisoning cases. She is frequently sought by media outlets, and does a great service to mycology and to the public by providing one of the only local sources of knowledgeable and accurate information about mushrooms in this region.

Cathy's academic research has important applications for both amateur mycology and for the well-being of people and ecosystems. She is a highly regarded expert on arctic-alpine, montane snowbank, and aspen-associated fungi, and her research has relevance for land use planning, reclamation, and fire management. Her research on Rocky Mountain alpine fungi is the most comprehensive study of fungal diversity in this ecosystem, and provides an important baseline for assessing the effects of climate change on fungi in high-elevation habitats in North America. Her research partnership on improving commercial shiitake cultivation with Garden City Fungi, a Montana-based grower of specialty mushrooms, was lauded by the Montana Department of Commerce as a commercialization success, showing how scientists can pair with farmers to support the vitality of the state's agricultural economy.

Few people are as passionate about their work as Cathy, or are as enthusiastic about sharing their knowledge and talents with others. She has a deep respect for the fundamental work and rich history of mycology, not only the newest techniques. She is a consummate mentor and teacher who has shared her passion for fungi through summer field courses and less formal identification workshops in addition to her formal academic mycology courses at Montana State University.

The 2012 Harry and Elsie Knighton Service Award

Before Dianna Smith became enamored with mycology, she was well known in gardening and nature circles as a Master Gardener, a nature photographer and the producer of a weekly TV show on gardening and the environment. Wanting to create a program on fungi, Dianna took her first mushroom walk with the Connecticut-Westchester Mycological Association (COMA) about ten years ago. Her interest was so intense that she progressed from student to teacher in very little time and soon became chief identifier for club. Prior to becoming COMA President six years ago, she served the club as Membership Chairman, Communications Liaison and Vice President. She has attended almost all of the club's weekly walks, photographs the mushrooms found and includes the photos in a weekly write-up of the walk on a website created for club members. Hundreds of her photos have appeared in field guides by Michael Kuo, Gary Lincoff and others and in the smart phone application of the Audubon Society's Field Guide to Mushrooms of North America. She also has produced over fifty professional videos of club events, for her TV program and for NAMA. As Communications Liaison for COMA, she has been in constant contact with club members, providing reminders of upcoming walks and lectures. Her excellent organizational skills are apparent in her ability to get other members of the club to take on important jobs. She also regularly writes articles for the COMA newsletter and along with Don Shernoff, has been instrumental in helping to plan and run the annual four-day COMA Rogerson Foray for the past several years. In addition, she served as a regional mushroom identifier for the Long Island and Westchester, NY poison control centers.

Dianna's passion for promoting mycology among COMA members led her to develop an educational program entitled Mushroom University that has been meeting with Gary Lincoff for four hours each on six Saturdays every spring for the past seven years. Dianna assisted Gary, hosting most workshops at her home, providing her technical expertise and equipment for projection of Gary's Powerpoint presentations, preparation of handouts, frequent e-mail to participants, as well as collecting, drying, boxing and labeling specimens for study. Each year, for the past seven years, they have chosen a group of mushrooms to study in depth. As a result of the course, Dianna and Gary fostered a group of knowledgeable walk leaders and identifiers. She also created an educational website called http://www.fungikingdom.net featuring the writings of Bill Bakaitis and topics covered in Mushroom University.

In 2010 Dianna was Chair of NEMF, the Northeast Mycological Foray, attended by 250 people. Ever more frequently, she has been engaged in outreach giving mycology seminars at Eagle Hill with Dr. Roz Lowen as well as mushroom lectures and leading walks for outside groups such as Audubon clubs, nature centers, and NY and CT state parks. With Sandy Sheine's encouragment, Dianna joined the NAMA Education Committee a few years ago and her long annual report is filled with her contributions to mycology. She became editor of *The Mycophile* in January of 2012.

Nominations for the NAMA Award for Contributions to Amateur Mycology and the Knighton Service Award should be sent by April 1st to: Gary Lincoff, New York Botanical Garden, Bronx, New York 10458 - or email: Gary@noahsquark.com. Guidelines for the awards can be found in the Jan.-Feb. 2013 edition of The Mycophile and online at www.namyco.org/awards.

Eating Wild Mushrooms All Year Long

by Dave Layton & Barbara Ching

Article is from the winter isue of SYMBIOSIS, The Prairie States Mushroom Club

Dave Layton: This year, for the first time, I made a tasty mushroom soup with seven kinds of wild mushrooms in January. It was a great way to compare how different species react to freezing and drying. The soup contained raw frozen *Grifola* as well as partly sautéed then frozen shaggy manes, blewits, *Hericium* and oyster mushrooms. It also had dried chanterelles, wood ears, *Marasmius oreades* and thin strips of dried *Grifola.* Overall I thought the soup was fine but a little stronger and more preserved tasting than if all mushrooms were fresh.

A few things I noticed were that a few dried chanterelles go a long way, giving the soup a noticeable chanterelle overtone – not a bad thing, but I thought they might better have been used in their own recipe. The dried *Grifola* turned out fine though it seemed a little less flavorful than its frozen counterpart. The dried *Marasmius* also added a cute appearance of the small bonnet shaped buttons throughout. Some of those I actually picked in an already dried state. This can be done if they never got waterlogged after emerging.

All the partly sautéed frozen mushrooms were delicious. In fact freezing shaggy manes, *Hericium,* and blewits this way makes them more firm and flavorful. However oyster mushrooms become chewier. I learned this method of mushroom freezing from reading that this is a good way to save morels. You simply cook them in a little butter and olive oil (or your favorite mushroom sauté oil) just to the point where the juices emerge, then dump them in freezer-bags juice and all. Since you want them to flatten out to be only one layer thick, avoid overfilling the bag. Close the bag except for a little gap in the middle, and suck excess air out before sealing. Don't worry about a stray germ from your mouth. These mushrooms will be cooked more later on, anyway. Raw *Grifola* should be thoroughly cleaned and chopped into serving-size pieces and flattened and vacuum-sealed in bags the same way. This way you can easily stack flattened bags in the freezer and break out only as much as you want for a particular recipe.

Dried mushrooms I soak in a little water till they soften then add to the sauté pan water and all. My problem has been with ear fungus. Little strips of it in soup are fine and they add a unique texture, but I've never cooked them anywhere as deliciously as when I ate them in “hot-pot” on a visit to China. I've wondered if our local varieties are inferior or I just didn't know what I was doing. Fortunately we now have Barbara Ching to share her insights into harvesting and cooking ear fungus all year long!

Barbara Ching: The short of it is, you just harvest them when you find them, and in my experience, you can find them year round. Even better, their condition - fresh or dry - doesn’t much matter, although fresh will save you some time. Keep in mind that anything you find will be relatively fresh; I’ve never found any in the woods as dry as the packets you can buy.

You'll read in Chinese cookbooks that tree ears are used mostly for texture. That's not a dismissal of their importance, though. Texture matters a lot in Chinese food, and the texture that tree ears provide is so important in Chinese cooking that the Chinese cultivate tree ears to ensure themselves a steady and abundant supply. Tree ears add a meaty texture and an umami flavor that many mushrooms add. You can test this for yourself by making two versions of a classic Szechuan dish: Ma Po Tofu.

First, though, think about how texture matters in your own likes and dislikes. Okra, anyone? If you don't like it, you might be thinking about slime. I like it steamed and still slimy, with butter, salt, and lemon, but no one else in my house does. They will gladly eat it battered and fried, though. Then okra feels crispy. Bananas are like this for me. I love the way they smell and taste but I hate the thick mushy way they feel. If I slice them and put them on ice cream, they get firmer. If I puree them with yogurt and peanut butter, I can't feel them at all but I can still taste them, and that makes me happy.

I really like Ma Po Tofu. The easiest way to make this dish is to buy a mix from an Asian grocery. The mixes aren't cheap, but they save you a lot of chopping and hunting for obscure spices. If you want to make the whole thing from scratch, many of the Chinese cookbooks at your local library will have a recipe for it, and you'll go crazy checking out all the versions you can find on the Internet. It is, like I said, a standard dish, like lemon meringue pie or mac and cheese. Mix or scratch, you'll need a block of firm tofu and a few ounces of ground meat. I use pork. Many of the cookbook recipes will mention tree ears; a lot of the Internet ones won't. The mix, most likely, won't. Try it with and without and you'll see for yourself what tree ears add to a dish.

My way is easier than most directions. Heat some oil in your wok. I'd use less than most recipes say, especially if you are using ground pork, which has some grease of its own in it. After you've fried the ground meat, drop in the tree ears. I give my tree ears a bath in a glass of boiling water. They float to the top while bits of grit and bark sink to the bottom. Then I spoon them out. (If you're using a recipe

Auricularia auricula,
Tree or Wood Ear
Jelly Fungus
Photo by Jim Fink

ignore any directions that say to soak the tree ears for a long time. The recipe is assuming you're using dried tree ears rather than the fresh ones you found yesterday!) Slice up your biggest tree ears. I also cut out the rough edge where they were attached the trees and compost that.

Then, most of the mix instructions have you pour the mix in the wok. Keep the faith at this point: the mix looks like mud that splashes on you when a truck speeds by on a rainy day, but it will be okay once you add the tofu. If you want some vegetables in the dish, now's the time to drop your nicely sliced ones in the wok. (Do this rather than going to the trouble of making a separate vegetable dish.) Tofu comes last, and just let it heat through.

Pour it over your bowl of rice, and it's ready to serve.

The Nutritional Value of Mushrooms

by Mike Krebill

Article from Symbiosis, the newsletter of the Prairie States Mushroom Club, Winter 2013

Mushrooms are being touted as a new "Super Food." Some of the marketing hype is true, some of it is false, and some of it is deliberately misleading. Let's start by examining the major point, that mushrooms bring more than flavor and texture to our meals – they add nutritional value.

Less than a decade ago, we heard just the contrary – that mushrooms had no nutritional value. Mushrooms had little substance, it was argued; mushrooms were mainly water and had very few calories. Given a stranded in the wilderness survival setting where calories are critical to provide body heat and energy, the claim has merit. The fact that mushrooms are largely water and have few calories is true. On the other hand, that is a bonus in today's world where many of us monitor calories yet crave flavor.

The assertion that mushrooms have no nutritional value, however, has proven to be false. Laboratory investigations have documented the nutrients found in fungi. Results for white button mushrooms, portabellas, morels, oysters, shiitakes, maitakes, and chanterelles can be found by searching the enormous national nutrient database. To begin looking, start with this link: U.S. Department of Agriculture, Agricultural Research Service. 2012. USDA National Nutrient Database for Standard Reference, Release 25. Nutrient Data Laboratory Home Page, http://www.ars.usda.gov/ba/bhnrc/ndl

For those of you without Internet access, here is the gist: mushrooms contain dietary fiber, potassium, niacin, folate, and Vitamin B6 as well as lesser amounts of other vitamins and other minerals like calcium and phosphorus. The proportion of potassium exceeds that found in bananas. Morels, for instance, turned out to be 90% water, 3% protein, and a 100 gram sample contained 2.8 grams of fiber, 43 milligrams of calcium, 12.2 mg of iron, 19 mg magnesium, 194 mg of phosphorus, 411 mg of potassium, 21 mg of sodium, and only 2 mg of zinc. In terms of vitamins, the major ones found were the four B vitamins: thiamin (0.07 mg), riboflavin (0.21 mg), niacin (2.25 mg), and vitamin B6 (0.14 mg.) 5.1 micrograms of Vitamin D (D2 + D3) and 206 IUs of Vitamin D were also recorded, along with about 0.5 g of fatty acids.

Nutrition Facts

Serving Size 1 cup, pieces or slices 70g (70 g)

Amount Per Serving	
Calories 15	Calories from Fat 2
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat	
Cholesterol 0mg	0%
Sodium 4mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	3%
Sugars 1g	
Protein 2g	

Vitamin A	0%	• Vitamin C	2%
Calcium	0%	• Iron	2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

© www.NutritionData.com

Nutrition data for white button supermarket mushrooms.

The next time you see a package of white button mushrooms (*Agaricus bisporus*) in a store, you'll likely spot a "High in Vitamin D" label or sticker on the container. A new commercial processing technology has been developed that boosts the vitamin D content of mushrooms up to 700%. It is done with pulses of UVB light, the same kind of light that causes suntans. The neat thing is that the taste is not affected nor the other nutrients. Paul Stamets says that you can do the same thing with your wild mushrooms by exposing them to two days of sunlight before cooking them. Mushrooms have a Vitamin D precursor that can be activated by light. But then, so does our skin. We can make our own Vitamin D by spending more time outdoors.

You'll also find a lot of other hype on the package: "Superfood" and "Deliciously Healthy," for instance. Here are more of the claims that I copied from a package this morning: "Fat free, B Vitamins, Antioxidants, Low Calorie, Low Sodium, No cholesterol, Vitamin C, A good source of antioxidant selenium, Locally grown – nationwide." The claim to be fat free might as well be true, since the amount of fat (0.2 g/serving – which includes 97.3 mg of Omega-6 fatty acids) is small. The other statements are accurate, although a single serving of mushrooms only furnishes 2% of a person's daily need for Vitamin C. You'd have to consume 50 servings of raw white button mushrooms to get 100% of your Vitamin C needs, so touting Vitamin C is deliberately misleading the consumer. As to the "locally grown - nationwide" marketing claim, it slanders the concept of locally grown produce. Most of the fresh button mushrooms in Iowa's supermarkets are shipped here from one of two places: Monterey, California or the Monterey facility in Princeton, Illinois. Neither one is local. In fact, the mushrooms may have been grown anywhere in the US, then shipped to California or Illinois for distribution. (The same thing is true of "California Strawberries," according to an Ohio grower. She said that greenhouse strawberries were picked green in Ohio, shipped to California, and then redistributed around the United States – including back to Ohio – as California Strawberries, being treated with ethylene gas to "ripen" them just before they went in stores. While they may look attractive, their taste falls far short of the naturally ripened, field-grown strawberries we can pick locally at the optimum time to harvest them. The same thing is true of tomatoes; the "store-bought" and greenhouse-raised aren't even close to the vine-ripened, garden-grown in flavor.) Scrutinize the label on a package of those mushrooms and it will likely say "distributed by" instead of "produced by." Which begs the question: where did they originate? It is certainly possible that they came from the US, although the US is the world's largest importer of white button mushrooms from China and India. Read the label of a can of Pennsylvania Dutch Button Mushrooms, and you'll find that it came from China, not Pennsylvania. I have a package of Mariposa Farms dried Shiitake mushrooms. Mariposa Farms is in Grinnell, Iowa, and the hope of locally grown & harvested mushrooms entered my mind. Knowing that Shiitake's are grown on oak logs, and that we have lots of oak in Iowa, I thought to myself that someday I'd want to visit Mariposa Farms, and take my camera along. Then I noticed, at the side of the bar code on the back of the package, "Product of China." I also have a package of Mariposa Farms dried Porcini mushrooms, the "Product of Serbia."

Mushrooms do have nutritional value, even though it is corporate imagination to market them as a super-food. I don't buy them for their modest nutritional value, I buy them because I enjoy the flavor and texture they add to my meals.

Commentary on *National Geographic* Article *by Dan Winkler*

National Geographic Magazine ran an article solely dedicated to Yartsa gunbu - *Ophiocordyceps sinensis* in their August 2012 edition entitled "Tibetan Gold - a medicinal fungus highly prized in China is fueling a boom on the Tibetan Plateau". Michael Finkel wrote the six pages of text; Michael Yamashita took the seven photos, including four double-page spreads. Both Finkel and Yamashita have had several NGM assignments before. Also included was a graphic depiction of the life cycle of *Ophiocordyceps sinensis* and a distribution map.

I probably better disclose at this point that I was contacted in February of 2012 by the editors to clarify certain points for them. Most of them were pretty straightforward and easy to answer, since most of the factual knowledge in the article is based on the research I have carried out and published over the last 15 years. Actually, I had offered NGM such an article twice, once in 2006 and again in 2009, but I never heard back for both story proposals. Anyway, I was very honored that NGM requested to use my Yartsa gunbu distribution map as the base for their map. Not surprisingly they have created a much nicer version than I have produced so far. Furthermore, I was in close collaboration with the beautiful design of the life cycle graphic. I have already integrated both graphics into my *Cordyceps* presentations. Last but not least, I got quoted in the context of Yartsa collection and sustainable management, currently my main concern regarding the Yartsa gunbu phenomenon.

Overall the article is very informative in regard to the collection and role of Yartsa gunbu in current Tibetan society as well as its trade in Tibet and beyond, including its use in China. However, the section on its medical uses falls short. Finkel presents the usual spin that there are no proven medical benefits to Cordyceps, probably on the assumption that the readers want to hear that everyone consuming Yartsa gunbu is just crazy and the Tibetans laugh all the way to the bank. It would have been appropriate to dig a bit deeper into the medical *Cordyceps* research. The U.S. National Library of Medicine's PubMed webpage lists for *Cordyceps* over 700 medical research papers. Each year there are dozens of papers published especially in East Asia. Or what about just a short reference to the Nottingham University study (Wong et al. 2010) that demonstrated how cordycepin stops cancer cell reproduction, even if it is not proven by clinical trial yet to actually work as a cancer remedy? And just a few months after that article was published National Geographic news published an article by Nicholas Mott entitled: "Caterpillar Fungus Has Anti-Inflammatory Properties - Tibetan spore could lead to new drugs for cancer, asthma, and diabetes" based on another study (Kondrashov et al. 2012) lead by Cornelia de Moor from Nottingham University. In short, there is a plethora of material available to report on *Cordyceps* and its medicinal potential in a different tone. Moreover, the author's attempt to leave a bit of dignity to Yartsa gunbu users by integrating a story on a Chinese cancer patient that felt much better using Yartsa gunbu failed completely. I have no issue with anecdotal evidence - a friend's healing experience means more to me than a mere statistic. However, using anecdotal evidence in this article was completely upended by the epilogue that the Chinese cancer patient had died just before the article was published.

I argued in favor of two editorial inputs, which were accepted. This really made me happy. One was the use of the proper Tibetan name for caterpillar fungus "Yartsa gunbu", a name I have been championing since my first publication on Yartsa gunbu in 2003. I could make the case that it is preferable to stick with the name already published in the 15th Century by Zurkhar Nyamnyi Dorje, a Tibetan doctor who praised Caterpillar Fungus as a superior aphrodisiac (Winkler 2008). Actually when I shared the Tibetan text for translation with my twin brother Jakob, who is a tibetologist, I was hoping to find a source not focusing on the aphrodisiac theme, but that was what Nyamnyi Dorje focused on. The other suggestion NGM accepted was regarding the source region. Originally NGM was going to report that 96.5% of all Yartsa gunbu is produced in China. Although these were my own numbers and it is a correct statement, I pointed out that probably 95% of harvest is from areas designated as autonomous Tibetan areas in China, such as Tibet Autonomous Region (TAR), and the Tibetan Autonomous Prefectures (TAP) located within Sichuan, Qinghai, Yunnan and Gansu Provinces. Together these autonomous prefectures outside of TAR encompass nearly two thirds of the Tibetan cultural area and the Tibetan population. And nearly all of these areas have Yartsa gunbu resources. The Tibetan areas in Qinghai alone harvest annually more Yartsa gunbu than Tibet AR.

Strangely the author uses Chinese names for all the Tibetan collectors and dealers he interviewed and writes about. The original Tibetan name got mangled beyond recognition for any western reader. How is one to recognize Chinese "Silang" for Tibetan "Sonam"? I thought it could be Tsering - Chinese often turn an "r" into an "l". Anyway, Sonam has been used in English for centuries already; it is as common a name as Sam in English. For example, there is the 3rd Dalai Lama Sonam Gyatso, the 2ndPanchen Lama Sonam Choklang and the list goes on and on.

Doing fieldwork on Yartsa gunbu since the late 90s I cannot help myself and have to analyze the prices reported in the article. Price development of Yartsa gunbu is a very intriguing subject, basically prices went up over 1000% since I have been researching Yartsa gunbu; but the 2008 global financial crisis really made a dent in the steady increase and the market has been less bullish. However, two consecutive poor harvests due to dry winters have driven prices up in 2012. As most popular articles on Yartsa gunbu, the NGM article focuses on the highest prices achieved for the precious fungus. However it is mentioned that "Silang and Yangjin", two collectors the author followed around in Serxu (= Tibetan: Sershul, Chinese: Shiqu), a county in the west of Sichuan's Garze (= Tibetan: Kandze, Chinese: Ganzi) TAP, received 580 Yuan or $90 for 30 Yartsa pieces, which amounts to 20 Yuan or $3 per piece, contradicting earlier statements. In the intro image a subtitle reads: "Some go for $20 (120 Yuan) apiece". Early on in the text it is stated it commands twice the price of gold in a fancy shop in China, which would indicate a price of $26,500 or 167,000 Yuan per pound and translates to about 210 Yuan per specimen. In the final double page photo of the article it states, "For 1500 high quality worms - that's about two pounds - the firm could reap $100,000". Well, we are not just talking high quality; 750 Yartsa gunbu per pound is the highest quality; they hardly come any bigger than that! And size does matter in the caterpillar fungus trade; I like to speculate there is a connection to its use as an aphrodisiac. Actually, this late May I saw a display of Yartsa gunbu, which is known in China as Chong cao, in the same store claiming it only required 600 pieces to weigh in at one metric pound.

I never saw anywhere such an exceptional size class before, just as I have never seen the price class before (So far I do not spend time searching for high end stores in Beijing or Shanghai). Zhong Shi Chong Cao Store charged 740,000 Yuan, which equals US$ 118,800! Interestingly the store depicted in the article is the same I have been visiting during my MushRoaming Cordyceps Expedition for several years now. I posted basically the same picture of young Chinese clerks bundling caterpillar fungus on my webpages two years (see also photo below). There is clearly no copyright on photo ideas, and how does the saying go? "Imitation is the sincerest form of flattery".

Towards the end of the article myco-visionary Paul Stamets was quoted as saying "People could be poisoned" from eating wild-crafted Caterpillar Fungus, "for (the) inexperienced it is a form of Russian roulette". I could neither believe that Paul is still claiming this, nor that NGM printed this claim. For starters, Paul's company Fungi Perfecti is selling artificially grown *Cordyceps* mycelium. Some people would call that a clear conflict of interest. I see no conflict of interest in Paul's absurd statement, as he was being a good businessman, trying to sell his product. However, NGM publishing this seems very odd. As wild caterpillar fungus is a cherished status symbol, which rich and powerful Chinese love to consume, we would hear right away if the natural substance was poisoning them. Not a single story surfaced in the last 15 years regarding a Cordyceps poisoning. The only thing that keeps being repeated is a case many, many years ago when some 'creative' backcountry dealer inserted lead wire into caterpillar fungus to add some weight. That scared the whole industry and the big brokers now use x-ray machines to make sure this will not happen again.

Or maybe Paul in his visionary capacity foresaw the news published in The New York Times (October 12, 2012). Gu Kailai, the murderous wife of disgraced Chongqing communist party star Bo Xilai, was allegedly ingesting mercury and lead-laced Yartsa gunbu pills, but luckily realized early enough she was being poisoned and thus survived the poison attack! My recommendation: Stay away from pills! It is best to stick to consuming the natural thing if you can afford it and do look for a less dysfunctional family.

Overall, I was very pleased to see National Geographic Magazine finally dedicating a full story to the Yartsa gunbu phenomenon. There is no other cash crop on this globe that is generating such substantial income for an otherwise marginalized local people. For better or worse, there is no other rural economy that has been pushed from subsistence production to a cash economy relying on a traditional resource in such a short period. Of course such changes cause a lot of challenges to any community and it will be interesting to follow the changes and how the communities will fare. Above all, it is crucial to secure sustainable management approaches, something badly neglected so far. Picked for centuries, Yartsa gunbu seems quite resilient, but the current onslaught is unparalleled. To quote the NGM article: "To harvest the worms sustainably, pickers would need to leave some stalks in the soil to mature and infect the next season's larvae, says ecologist Daniel Winkler".

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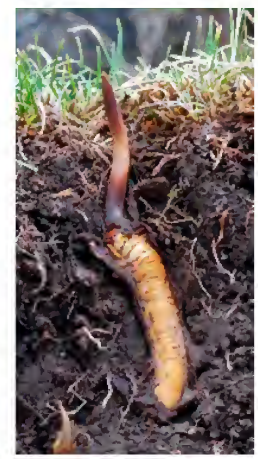

Collectors near Jyekundo/Yushu and a dug out specimen of *Ophiocordyces* from the same location: *Photos by Dan Winkler*

McIlvainea: Journal of American Amateur Mycology – request for articles

McIlvainea is an open-access, refereed journal for the amateur and professional mycological community. It is published by the North American Mycological Association as a rolling publication. Articles are published as soon as they have been refereed and approved. Instructions for authors appear on the NAMA website www.namyco.org/publications/mcilvainea/mcil_instructions.html. NAMA plans to develop McIlvainea as a tool to educate citizen scientists who can assist with establishing a North American mycoflora. McIlvainea will be a home for more technical papers than those that appear in Fungi Magazine and Mushroom: The ournal and more directed at the lay public than articles that may appear in Mycologia. Articles that review recent developments in fungal taxonomy of Macromycetes would be particularly welcome. It could also become a home for outstanding senior student research papers that may not yet be uite ready for Mycologia. We encourage all NAMA members to be thinking about how they can contribute to the North American mycoflora project and encourage you all to write up your research in McIlvainea. Feel free to contact me about ideas that you may have for a paper.

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Field Guide to Mushrooms of Western North America
(California Natural History Guides, 106)
R. Michael Davis, Robert Sommer, and John A. Menge
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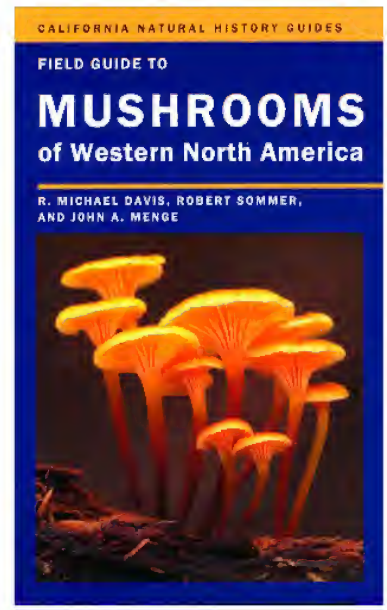


The principal field guide for California mushroom hunters has long been *Mushrooms Demystified*, but its current edition is now over 25 years old and increasingly is showing its age. Although David Arora is planning to do a revision or new edition of his classic work, it will be at least several years before it will be available. However, three other field guide projects have been underway in the Golden State and the first of them has hit the street.

Field Guide to Mushrooms of Western North America is a re-do of the 1979 *Mushrooms of Western North America* by Robert and Dorothy Orr. Although U.C. Press retained the geographic scope of The original in the new book's title, the focus is mostly on California, which is home to all three of the authors.

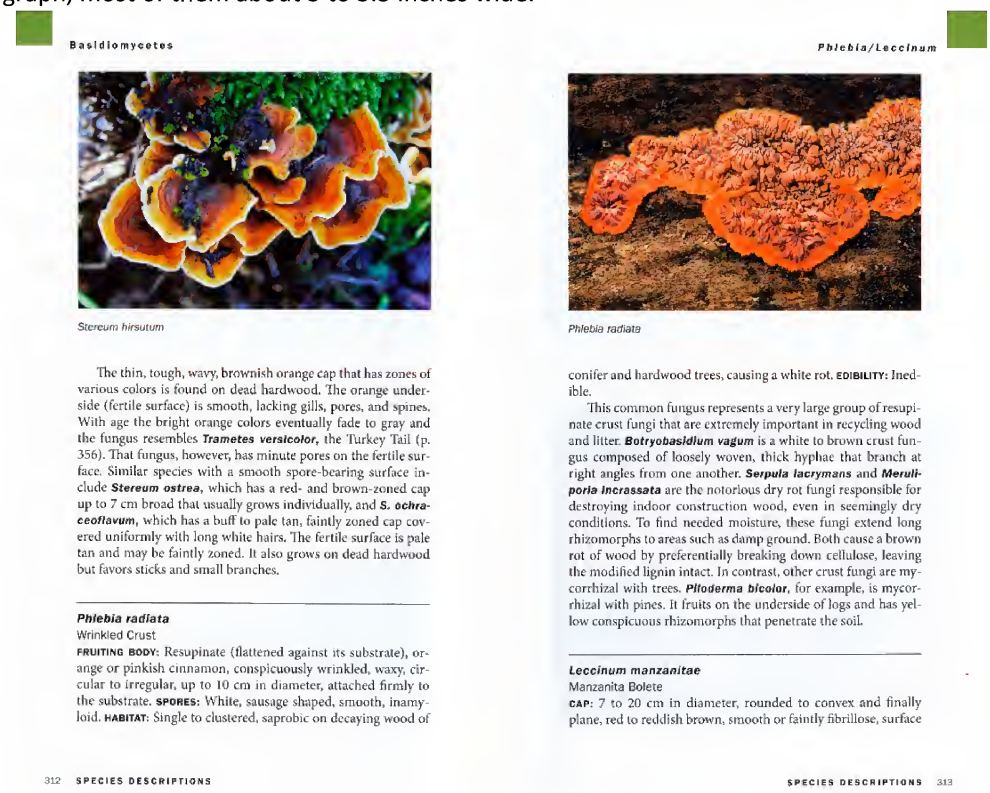
Michael Davis is Professor of Plant Pathology and Robert Sommer is retired Professor of Psychology at the University of California, Davis, and John Menge is retired Professor of Plant Pathology at U.C. Riverside. Davis is engaged in the study of russulas, Sommer is an amateur mycologist who paints and writes for popular mushroom journals, and Menge has provided guidance to amateur mycologists in southern California for many years.

This is a relatively small-format (page size is about 7.25 × 4.5 inches) guide to about 300 species. The content and organization are fairly typical for a field guide. The 43 pages of introductory material includes what is a mushroom?, fungus ecology, collecting mushrooms, mushroom cultivation, and toxins. This is followed by an up-to-date overview discussion of mushroom classification, a quick picture key to the main morphological groups, and a set of general dichotomous keys to species or genera. Unfortunately, the entry point for the latter is knowing whether your mushroom has basidia or asci, which requires a microscope, and the simple picture key fails to indicate where you should go once you've determined the group to which your mushroom belongs. The two types of key should have been coordinated to facilitate their use by folks without microscopes.

Next comes the descriptive part (about 350 pages), which also includes keys to the featured species. They include many of the commonly illustrated species that appear in nearly every field guide, but also a number of newly described species from California such as *Amanita vernicoccora* and *Cortinarius xanthodryophilus*. Lastly, the back matter includes a section on fungus arts and crafts (sketching, artistic spore prints, painting with puffball spores, mushroom postage stamps, photography, mushroom dyes, fungus fairs, and watercolor painting), a genus-by-genus listing of spore-print colors, a list of "other" names that have been applied to many of the included species, glossary, list of print and Internet resources, acknowledgments and art credits, and index. I particularly like the inclusion of the list of synonyms, changed names, and misapplied names. However it would have been helpful to see an indicationfor each entry of whether it is a misapplied name, synonym, or whatever, as the distinctions are important.

The descriptions follow a standard format (modified as necessary to apply to the non-gilled species)—cap, gills, stalk, spores, habitat, and edibility, followed by commentary that addresses things like recognition of similar species and uncertainty in the application of names. Like the rest of the book, the descriptions and comments are written clearly and they reflect the current state of knowledge about relationships and usage of names. The species names do not include the authorities.

Common names are given where they are in general use and, although synonyms are not routinely listed, "other names" are given in some cases. Each of the featured species is illustrated with a color photograph, most of them about 3 to 3.5 inches wide.



Stereum hirsutum

The thin, tough, wavy, brownish orange cap that has zones of various colors is found on dead hardwood. The orange underside (fertile surface) is smooth, lacking gills, pores, and spines. With age the bright orange colors eventually fade to gray and the fungus resembles ***Trametes versicolor,*** the Turkey Tail (p. 356). That fungus, however, has minute pores on the fertile surface. Similar species with a smooth spore-bearing surface include ***Stereum ostrea***, which has a red- and brown-zoned cap up to 7 cm broad that usually grows individually, and ***S. ochraceoflavum***, which has a buff to pale tan, faintly zoned cap covered uniformly with long white hairs. The fertile surface is pale tan and may be faintly zoned. It also grows on dead hardwood but favors sticks and small branches.

Phlebia radiata
Wrinkled Crust
FRUITING BODY: Resupinate (flattened against its substrate), orange or pinkish cinnamon, conspicuously wrinkled, waxy, circular to irregular, up to 10 cm in diameter, attached firmly to the substrate. **SPORES:** White, sausage shaped, smooth, inamyloid. **HABITAT:** Single to clustered, saprobic on decaying wood of

Phlebia radiata

conifer and hardwood trees, causing a white rot. **EDIBILITY:** Inedible.

This common fungus represents a very large group of resupinate crust fungi that are extremely important in recycling wood and litter. ***Botryobasidium vagum*** is a white to brown crust fungus composed of loosely woven, thick hyphae that branch at right angles from one another. ***Serpula lacrymans*** and ***Meruliporia incrassata*** are the notorious dry rot fungi responsible for destroying indoor construction wood, even in seemingly dry conditions. To find needed moisture, these fungi extend long rhizomorphs to areas such as damp ground. Both cause a brown rot of wood by preferentially breaking down cellulose, leaving the modified lignin intact. In contrast, other crust fungi are mycorrhizal with trees. ***Piloderma bicolor***, for example, is mycorrhizal with pines. It fruits on the underside of logs and has yellow conspicuous rhizomorphs that penetrate the soil.

Leccinum manzanitae
Manzanita Bolete
CAP: 7 to 20 cm in diameter, rounded to convex and finally plane, red to reddish brown, smooth or faintly fibrillose, surface

Many of the photos are good to excellent and show the features necessary for identification purposes such as the hymenium, stalk base, and staining. However, some are of lesser technical quality (mediocre lighting or color rendition, etc.) and/or fail to show necessary features such as the volvas of several of the amanitas. In addition, I was disappointed to see the authors use a number of European photographs to illustrate western North American mushrooms. Although in the text they commendably make the point that there are problems, or at least uncertainty, using European names for many of our fungi, they inexplicably use European photographs for species such as *Amanita pantherina*, *Amanita phalloides*, *Gyromitra esculenta*, and *Xylaria hypoxylon*, for which Californian photos should have been readily obtainable.

In a couple of cases, the photos appear to not represent the species being described or the species as it occurs in the West. For instance, the one meant to portray Lichenomphalia umbelliferum sure looks to be a xeromphalina. One of the more distinctive mushrooms in the southwestern U.S. is our unnamed version of the European Caesar's mushroom (Amanita caesarea). Here it is described (admittedly with some qualification) as Amanita jacksonii (an eastern North American species) and a photograph from North Carolina (showing A. jacksonii) is used rather than one from Arizona or New Mexico, even though our western mushroom looks rather different from the eastern species.

The keys to species are short, to the point, and seem to work well enough. One just needs to keep in mind that, for most genera, the species included in the book represent only a small fraction of those you might find and so the "answer" you reach in the key might well not be the correct one for your mushroom.

Quibbles aside, the book is well written, reasonably priced (the paper version at least), and should be a useful addition to the field guide collections of western mushroom hunters, particularly those in California.

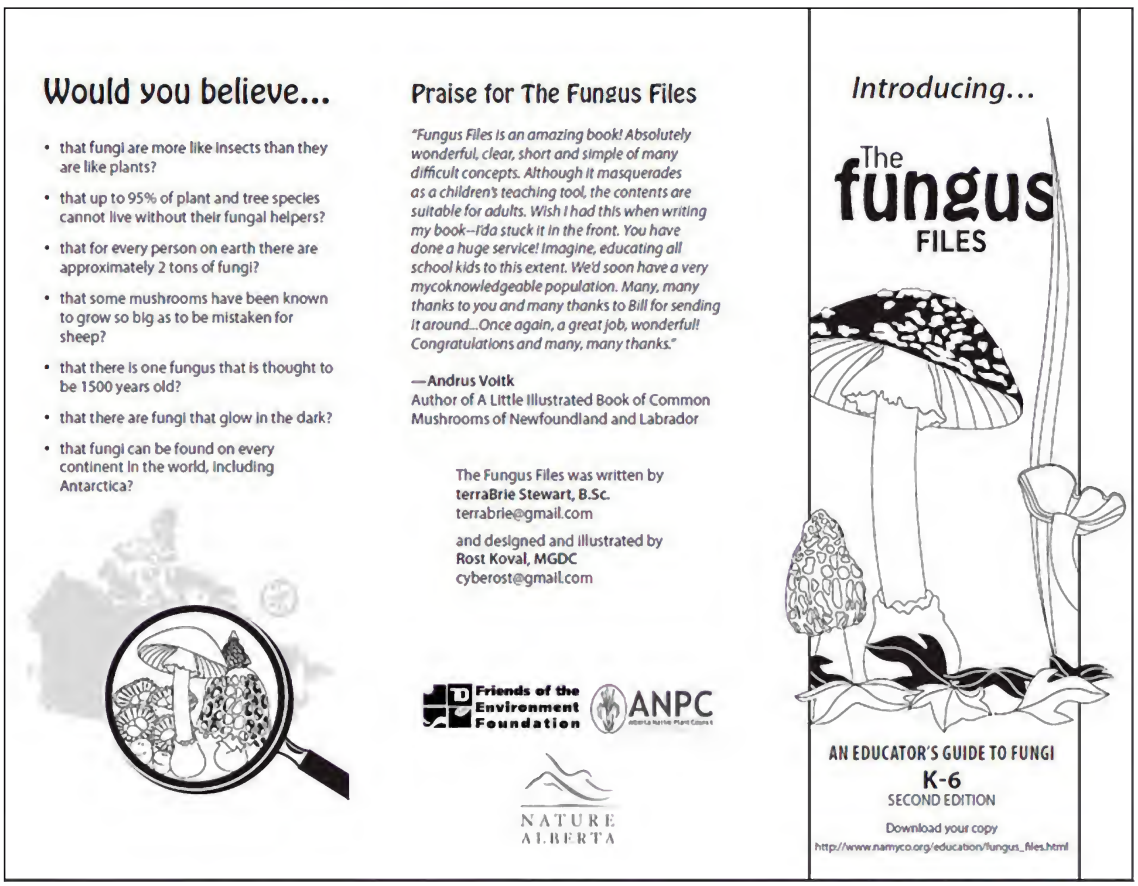
Steve Trudell

The Fungus Files: An Educator's Guide to Fungi Kindergarten - 6th Grade

In September 2012, Martin Osis introduced us to a marvelous document, developed in Canada for basic science instruction on fungi. To say that the NAMA Education Committee embraced this new educational tool would be an understatement. While designed as a teacher's instructional guide, the scope of information about fungi is comprehensive. *The Fungus Files: An Educator's Guide to Fungi K - 6* covers biology and classification, reproduction, non-fleshy fungi (yeasts and molds), introduces the concept of mycorrhizas, and the role of fungi in nutrient recycling and soil creation.

When Bryce Kendrick, author of The Fifth Kingdom, read the 91A page document, he contacted author, terraBrie Stewart, and suggested some minor changes. A collaboration developed; a new version of The Fungus Files will be available on April 1, 2013 in the Education section of the NAMA website. Kendrick recently said this about the document:

> Through her dedicated efforts, Stewart has achieved something extraordinary: a well-illustrated introduction to the fungi that covers many aspects of this numerous and unique group of organisms, while making the information accessible to children in several different grades. Many of the graphics are extremely graceful, and they are in turn enhanced by several different kinds of word puzzle. In many places she has also inserted aids for teachers, and she leads the students on in graduated steps, so that they can be instructed to whatever level they are capable of absorbing. Both teachers and children will learn many new and fascinating things, and this is all the more exciting because the fungi, despite their tremendous importance and ubiquity, are usually almost ignored in the school curriculum. I hope that versions of this presentation can be made available to children far and wide, in addition to those fortunate enough to live in Alberta.


Would you believe...
• that fungi are more like insects than they are like plants?
• that up to 95% of plant and tree species cannot live without their fungal helpers?
• that for every person on earth there are approximately 2 tons of fungi?
• that some mushrooms have been known to grow so big as to be mistaken for sheep?
• that there is one fungus that is thought to be 1500 years old?
• that there are fungi that glow in the dark?
• that fungi can be found on every continent in the world, including Antarctica?
Praise for The Fungus Files
"Fungus Files is an amazing book! Absolutely wonderful, clear, short and simple of many difficult concepts. Although it masquerades as a children's teaching tool, the contents are suitable for adults. Wish I had this when writing my book--I'da stuck it in the front. You have done a huge service! Imagine, educating all school kids to this extent. We'd soon have a very mycoknowledgeable population. Many, many thanks to you and many thanks to Bill for sending it around...Once again, a great job, wonderful! Congratulations and many, many thanks."
—Andrus Voitk
Author of A Little Illustrated Book of Common Mushrooms of Newfoundland and Labrador
The Fungus Files was written by
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Friends of the Environment Foundation
ANPC
NATURE ALBERTA
Introducing...
The fungus FILES
AN EDUCATOR'S GUIDE TO FUNGI
K-6
SECOND EDITION
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http://www.namyco.org/education/fungus_files.html

terraBrie Stewart is a freelance writer, researcher and conceptual artist. She holds a BS with Distinction in biology and English literature from the University of Saskatchewan, and has worked as an environmental educator, college instructor and field herpetologist. Her two K-6 teachers guides, The Frog Files (2002) and The Fungus Files (originally published in 2007), are both available as e-books in pdf format.

Stewart is fueled by an insatiable curiosity in the natural world and a passion to express her poetic love of nature to an open audience. She currently lives in Edmonton, AB, where she is employed by her three young children.

READY for MOREL SEASON? by Terry Stoleson of CVMS

I've heard it said so many times that 'morels don't come up in the same place' every year. Don't you believe it. They may not be in the very same square foot of ground, but they do frequently return under the same tree. I personally have been picking from under the same trees in the same woods for over 20 years. So, if you want to find yours* when the season begins in April, get busy and start researching possible sites between now and then. A walk in or near woods is such feel-good stuff at this time.

If you read about morel harvests everywhere in the USA, you'll see that they grow under nearly anything and in many different soils. But in my experience, here in CT they're found under dying or recently deceased elms, white ash, sick and dying apple trees, tulip poplars and on rare occasion under sycamore, white pine and hickory. When I collected a few under the latter three species, there was always one or another of the former growing nearby. So it seems to me that the smart mushroomer would want to learn how to identify the above trees if he/she hopes to find morels in 2013. Briefly, elms are shaped like a wide flaring trumpet standing on the mouthpiece, or like a broccoli head as Connie Boredenko describes it. After it dies, the light gray furrowed and forking bark begins to slip off the trunk and the branches curl up and turn inward. No other tree does that, which makes them easy to spot in winter. The dark gray bark of both the ash and tulip poplar appears woven diagonally of fat, thick rough reeds much like a basket, with those of the latter being a bit more distant, generally.

It's important to note that I've always found the earlier fruiting black morel on slightly higher elevated areas and slopes and not in lowland areas such as riversides even though ash trees and tulip poplars grew there. The blonde ones can grow in any or all of those places.

I recommend that you find a good tree identification book**, one that shows not only the leaf (few leaves are on the trees when the season begins), but also the tree silhouette as it appears 'naked' and close-up photos of the bark. Your local library should have that. Take my advice. Learn to recognize trees and just **MAYBE**, this spring you'll get real lucky. (And it wouldn't hurt to make friends with a good arborist).

*For additional information on where and how to find morels, check out this link and other sites on the Internet:
http://www.ohiomushroom.org/oms/FeaturedArticles/HowToFindMorels.htm
** I own and like "The Tree Identification Book" by Symonds published in 1958. It's a large book with black and white photos and almost all leaves, flowers and fruit are pictured actual size but the tree silhouettes are page size for obvious reasons.

This article first appeared in the winter 2013 issue of Spore Print, the newsletter of the Connecticut Valley Mycological Society.

The NAMA Publications Team

The Editorial committee (Michael Beug (chair), David Rust, Dianna Smith and Steve Trudell) is seeking additional members for the NAMA publications team. We are seeking an individual interested in serving as co-editor of *McIlvainea*, and individuals interested in refereeing articles for *McIlvainea*. Please see the accompanying *McIlvainea* call for papers to see our goals for *McIlvainea*. Please contact Michael Beug (beugm@evergreen.edu) for more information.

We wish to extend our condolences to those who knew New Mexico Mycological Society member Mariana Bornholdt, who passed away on February 26th. See http://4cmc.net/biobits/mariana.pdf.

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Newsletter of the North American Mycological Association
THE MYCOPHILE

Box Turtle eating a russula. This shot came in second in Chris Matherly's 2012 mushroom photo contest.The photographer is Larry Elliot of Virginia.To view the other contending submissions see http:// morelmushroomhunting.com/ finalists_2012.htm